INDEX TO VOLUME XLVIII.

ACER saccharinum, maple seed, acerin, the globulin of, 23

Acerin, the globulin of the maple seed (*Acer saccharinum*), 23

Acetone and diacetic acid, estimation of creatinine in the presence, 105

——, excretion from the lungs, 413

Acid, animal nucleic, preparation and analysis, 177

—— -base balance of the blood, normal and abnormal variations in, 153

——, citric, content of, in milk and milk products, 453

——, diacetic, and acetone, estimation of creatinine in the presence, 105

——, hippuric, in urine, rapid method for the determination of, 13

—— neutralization, mechanism of, in the animal organism, the bearing of ammonia content of blood on, 463

——, picric, and tungstic acid methods of deproteinization, comparison, 127

——, plant nucleic, possible bearing of thymus nucleic acid on the structure, 119

——, thymus nucleic, structure of, and its possible bearing on the structure of plant nucleic acid, 119

——, tungstic, and picric acid methods of deproteinization, comparison, 127

Acidosis, studies of, 153

Acids, amino–, of feeds, quantitative determination, 249

——, aminomalic, (*para-* and *anti-*hydroxyaspartic acids), synthesis of inactive, 273

——, monoamino-, in the hydrolytic cleavage products of lactalbumin, determination, 347

——, nucleic, influence on the metabolism of fasting dogs, 523

——, ——, —— on the metabolism of the fasting rabbit, 537

——, *para-* and *anti-*hydroxyaspartic, (aminomalic acids), synthesis of inactive, 273

——, sugar, numerical values of the optical rotations in, 197

Air analysis, a simplified form of apparatus for, 365

——, expired, for analysis, a gas receiver of convenient and practical form for sampling, 373

Alkali reserve and blood sugar content, influence of thyroparathyroidectomy upon, 557

—— —— —— experimental shock, 533

ALU, ANTHONY F. See UNDERHILL, GREENBERG, and ALU, 549

Amino-acids of feeds, quantitative determination, 249

Aminomalic acids (*para-* and *anti-*hydroxyaspartic acids), synthesis of inactive, 273

Ammonia content of blood and its bearing on the mechanism of acid neutralization in the animal organism, 463

Analysis, air, a simplified form of apparatus for, 365

Analysis, expired air for, a gas receiver of convenient and practical form for sampling, 373
—— and preparation of animal nucleic acid, 177
Anderson, J. A. See Fred, Peterson, and Anderson, 385
Anderson, R. J. Acerin. The globulin of the maple seed (*Acer saccharinum*), 23
Animal nucleic acid, preparation and analysis, 177
—— organism, mechanism of acid neutralization in, bearing of ammonia content of blood on, 463
Antiscorbutic vitamine, effect of heating, in the presence of invertase, 323
Apparatus for air analysis, a simplified form, 365
——, thyroid, studies of, 143
Arabinose and xylose, characteristics of certain pentose-destroying bacteria especially as concerns their action on, 385

Bacteria as a source of the water-soluble B vitamine, 379
—— and certain yeasts, vitamine requirements, 437
——, pentose-destroying, characteristics of certain, especially as concerns their action on arabinose and xylose, 385
Base, acid-, balance of the blood, normal and abnormal variations in, 153
Baudisch, Oskar. The mechanism of reduction of nitrates and nitrites in processes of assimilation, 489
Bellis, B. See Supplee and Bellis, 453
Bence-Jones protein, note on a possible source of error in testing for, 21
Benedict, Stanley R., and Osterberg, Emil. A method for the determination of sugar in normal urine, 51
——. See Nash and Benedict, 463
Blau, Nathan F. The estimation of creatinine in the presence of acetone and diacetic acid, 105
Blood, ammonia content of, and its bearing on the mechanism of acid neutralization in the animal organism, 463
——, catalase content of, effect of subcutaneous injections of solutions of potassium cyanide on, 445
——, direct quantitative determination of sodium, potassium, calcium, and magnesium in small amounts, 223
——, normal and abnormal variations in the acid-base balance, 153
——, —— —— some pathological human, potassium content, 83
—— phosphate, inorganic, studies in, 293
—— sugar content and alkali reserve, influence of thyroparathyroidectomy upon, 557
—— ——, studies on, 313
——, total amount of circulating sugar in, in diabetes mellitus and other conditions, 313
Bock, Arlie V. See Fitz and Bock, 313
Bodansky, Meyer. The zinc and copper content of the human brain, 361
Bollman, J. L. See Welker and Bollman, 445
Brain, human, zinc and copper content of, 361
Briggs, A. P., and Shaffer, Philip A. The excretion of acetone from the lungs, 413

CABBAGE, orange juice, cod liver oil, and green and dried plant tissue on calcium assimilation, comparative influence, 33
Calcium assimilation, comparative influence of green and dried plant tissue, cabbage, orange juice, and cod liver oil on, 33
—— ——, dietary factors influencing, 33
——, magnesium, sodium, and potassium in small amounts of blood, direct quantitative determination, 223
——, ——, ——, and potassium in urine and stools, methods for the direct quantitative determination, 1
Carbohydrate content of the king salmon tissues during the spawning migration, 429
Catalase content of blood, effect of subcutaneous injections of potassium cyanide on, 445
Chemical development of the ovaries of the king salmon during the spawning migration, 59
—— study of the California sardine (*Sardinia cærulea*), 93
—— —— —— certain Pacific Coast fishes, 73
Citric acid content of milk and milk products, 453
Cod liver oil, green and dried plant tissue, cabbage, and orange juice on calcium assimilation, comparative influence, 33
Collodion membranes, preparation and standardization, 203
Copper and zinc content of the human brain, 361
Creatinine and creatine in muscle extracts, 127, 133
—— in the presence of acetone and diacetic acid, estimation, 105
Creatinine-creatine balance in incubated extracts of muscle tissue of the albino rat, influence of parathyroid and thyroid tissue on, 143
—— —— —— incubated extracts of muscle tissue of the albino rat, influence of the reaction of the medium on, 133
Creatine, creatinine-, balance in incubated extracts on muscle tissue of the albino rat, influence of parathyroid and thyroid tissue on, 143
——, ——, —— in incubated extracts of muscle tissue of the albino rat, influence of the reaction of the medium on, 133
—— and creatinine in muscle extracts, 127, 133
Cyanide, potassium, solutions of, effect of subcutaneous injections of, on the catalase content of blood, 445

DAKIN, H. D. The synthesis of inactive *para-* and *anti-*hydroxyaspartic acids (aminomalic acids), 273
DAMON, SAMUEL R. Bacteria as a source of the water-soluble B vitamine, 379
Deproteinization, comparison of the picric acid and tungstic acid methods, 127
Determination, direct quantitative, of sodium, potassium, calcium, and magnesium in small amounts of blood, 223
——, —— —— of sodium, potassium, calcium, and magnesium in urine and stools, methods for, 1
—— of creatinine in the presence of acetone and diacetic acid, 105
—— —— hippuric acid in urine, rapid method for, 13

Determination of the monoamino-acids in the hydrolytic cleavage products of lactalbumin, 347
—— —— sugar in normal urine, method for, 51
——, quantitative, of amino-acids of feeds, 249
Diabetes mellitus, total amount of circulating sugar in the blood in, 313
Diacetic acid and acetone, estimation of creatinine in the presence, 105
Dietary factors influencing calcium assimilation, 33
Dill, D. B. A chemical study of the California sardine (*Sardinia cærulea*), 93
——. A chemical study of certain Pacific Coast fishes, 73
Dubin, Harry E. See Funk and Dubin, 437

Eggerth, Arnold H. The preparation and standardization of collodion membranes, 203
Esters, phosphoric, of some substituted glucoses and their rate of hydrolysis, 233
Excretion of acetone from the lungs, 413
Extracts, incubated, of muscle tissue of the albino rat, influence of parathyroid and thyroid tissue on the creatinine-creatine balance in, 143
——, ——, —— muscle tissue of the albino rat, influence of the reaction of the medium on the creatinine-creatine balance in, 133
——, muscle, creatinine and creatine in, 127, 133

Fasting dogs, metabolism of, influence of nucleic acids on, 523
Fasting dogs, metabolism of, influence of various protein split products on, 503
—— rabbit, metabolism of, influence of nucleic acids on, 537
—— ——, —— of, influence of some protein split products upon, 549
Feeds, amino-acids of, quantitative determination, 249
Fishes, certain Pacific Coast, chemical study, 73
Fitz, Reginald, and Bock, Arlie V. Studies on blood sugar. The total amount of circulating sugar in the blood in diabetes mellitus and other conditions, 313
Food ingestion upon endogenous purine metabolism, influence, 563, 575
Fred, E. B., Peterson, W. H., and Anderson, J. A. Characteristics of certain pentose-destroying bacteria especially as concerns their action on arabinose and xylose, 385
Funk, Casimir, and Dubin, Harry E. Vitamine requirements of certain yeasts and bacteria, 437

Gas receiver of convenient and practical form for sampling expired air for analysis, 373
Globulin of the maple seed (*Acer saccharinum*) acerin, 23
Glucoses, phosphoric esters of some substituted, and their rate of hydrolysis, 233
Greenberg, Philip. See Underhill, Greenberg, and Alu, 549
Greene, Charles W. Carbohydrate content of the king salmon tissues during the spawning migration, 429
——. Chemical development of the ovaries of the king salmon during the spawning migration, 59

GRINDLEY, H. S. See HAMILTON, NEVENS, and GRINDLEY, 249
GUTHRIE, CHARLES CLAUDE. A gas receiver of convenient and practical form for sampling expired air for analysis, 373
——. A simplified form of apparatus for air analysis, 365

HAMILTON, T. S., NEVENS, W. B., and GRINDLEY, H. S. The quantitative determination of amino-acids of feeds, 249
HAMMETT, FREDERICK S. Creatinine and creatine in muscle extracts. I. A comparison of the picric acid and the tungstic acid methods of deproteinization, 127. II. The influence of the reaction of the medium on the creatinine-creatine balance in incubated extracts of muscle tissue of the albino rat, 133
——. Studies of the thyroid apparatus. IV. The influence of parathyroid and thyroid tissue on the creatinine-creatine balance in incubated extracts of muscle tissue of the albino rat, 143
HART, E. B., and HUMPHREY, G. C. Can "home grown rations" supply proteins of adequate quality and quantity for high milk production? III, 305
——, STEENBOCK, H., and HOPPERT, C. A. Dietary factors influencing calcium assimilation. I. The comparative influence of green and dried plant tissue, cabbage, orange juice, and cod liver oil on calcium assimilation, 33
Heating the antiscorbutic vitamine in the presence of invertase, 323
Hippuric acid in urine, determination of, rapid method for, 13
HOPPERT, C. A. See HART, STEENBOCK, and HOPPERT, 33
HUMPHREY, G. C. See HART and HUMPHREY, 305
Hydrolysis, rate of phosphoric esters of some substituted glucoses, 233
Hydrolytic cleavage products of lactalbumin, determination of the monoamino-acids in, 347
Hydroxyaspartic acids, *para-* and *anti-*, (aminomalic acids), synthesis of inactive, 273

INGESTION, food, influence upon endogenous purine metabolism, 563, 575
Injections, subcutaneous, of solutions of potassium cyanide, effect of, on the catalase content of blood, 445
Inorganic blood phosphate, studies in, 293
Invertase activity of yeast, effect of certain stimulating substances on, 329
——, effect of heating the antiscorbutic vitamine in the presence, 323

JOHNS, CARL O. See JONES and JOHNS, 347
JONES, D. BREESE, and JOHNS, CARL O. Determination of the monoamino-acids in the hydrolytic cleavage products of lactalbumin, 347

KINGSBURY, F. B., and SWANSON, W. W. A rapid method for the determination of hippuric acid in urine, 13
KRAMER, BENJAMIN, and TISDALL, FREDERICK F. The direct quantitative determination of

sodium, potassium, calcium, and magnesium in small amounts of blood, 223
——. See TISDALL and KRAMER, 1

LACTALBUMIN, monoamino-acids in the hydrolytic cleavage products of, determination, 347
Lecithin, liver, 185
LEHMAN, EDWIN P. Studies in inorganic blood phosphate, 293
LEVENE, P. A. On the numerical values of the optical rotations in the sugar acids, 197
——. On the structure of thymus nucleic acid and on its possible bearing on the structure of plant nucleic acid, 119
——. Preparation and analysis of animal nucleic acid, 177
—— and MEYER, G. M. Phosphoric esters of some substituted glucoses and their rate of hydrolysis, 233
—— and SIMMS, H. S. The liver lecithin, 185
Liver lecithin, 185
LONG, MARY LOUISA. See UNDERHILL and LONG, 537
Lungs, excretion of acetone from, 413

MAGNESIUM, sodium, potassium, and calcium in small amounts of blood, direct quantitative determination, 223
——, ——, ——, and calcium in urine and stools, methods for the direct quantitative determination, 1
Maple seed (*Acer saccharinum*), acerin, the globulin of, 23
MEDES, GRACE. See SMITH and MEDES, 323
Medium, influence of the reaction of, on the creatinine-creatine balance in incubated extracts of muscle tissue of the albino rat, 133
Membranes, collodion, preparation and standardization, 203
Metabolism, endogenous purine, influence of food ingestion upon, 563, 575
—— of fasting dogs, influence of nucleic acids on, 523
—— —— —— dogs, influence of various protein split products on, 503
—— —— the fasting rabbit, influence of nucleic acids on, 537
—— —— fasting rabbits, influence of some protein split products upon, 549
Method for the determination of sugar in normal urine, 51
——, rapid, for the determination of hippuric acid in urine, 13
Methods for the direct quantitative determination of sodium, potassium, calcium, and magnesium in urine and stools, 1
—— of deproteinization, comparison of picric and tungstic acid, 127
MEYER, G. M. See LEVENE and MEYER, 233
Milk and milk products, citric acid content, 453
—— production, high, can home grown rations supply proteins of adequate quality and quantity for, 305
—— products and milk, citric acid content, 453
MILLER, C. W., and SWEET, J. E. Note on a possible source of error in testing for Bence-Jones protein, 21
MILLER, ELIZABETH W. The effect of certain stimulating substances on the invertase activity of yeast, 329

Monoamino-acids in the hydrolytic cleavage products of lactalbumin, 347
Muscle extracts, creatinine and creatine in, 127, 133
—— tissue of the albino rat, incubated extracts of, influence of parathyroid and thyroid tissue on the creatinine-creatine balance in, 143
—— —— —— the albino rat, incubated extracts of, influence of the reaction of the medium on the creatinine-creatine balance in, 133
Myers, Victor C., and Short, James J. The potassium content of normal and some pathological human bloods, 83

Nash, Thomas P., Jr., and Benedict, Stanley R. The ammonia content of the blood and its bearing on the mechanism of acid neutralization in the animal organism, 463
Nellans, Charles T. See Underhill and Nellans, 557
Nevens, W. B. See Hamilton, Nevens, and Grindley, 249
Nitrates and nitrites in process of assimilation, mechanism of reduction, 489
Nitrites and nitrates in process of assimilation, mechanism of reduction, 489
Nucleic acid, animal, preparation and analysis, 177
—— ——, plant, possible bearing of thymus nucleic acid on the structure, 119
—— ——, thymus, structure of, and its possible bearing on the structure of plant nucleic acid, 119
—— acids, influence on the metabolism of fasting dogs, 523
Nucleic acids, influence on the metabolism of the fasting rabbit, 537

Oil, cod liver, green and dried plant tissue, cabbage, and orange juice on calcium assimilation, comparative influence, 33
Orange juice, cod liver oil, green and dried plant tissue, and cabbage on calcium assimilation, comparative influence, 33
Organism, animal, mechanism of acid neutralization in, bearing of ammonia content of blood on, 463
Osterberg, Emil. See Benedict and Osterberg, 51
Ovaries of the king salmon during the spawning migration, chemical development, 59

Parathyroid and thyroid tissue on the creatinine-creatine balance in incubated extracts of muscle tissue of the albino rat, 143
Pentose-destroying bacteria, characteristics of, especially as concerns their action on arabinose and xylose, 385
Peterson, W. H. See Fred, Peterson, and Anderson, 385
Phosphate, inorganic blood, studies in, 293
Phosphoric esters of some substituted glucoses and their rate of hydrolysis, 233
Physiological action of some protein derivatives, studies on, 503, 523, 533, 537, 549
Picric acid and tungstic acid methods of deproteinization, comparison, 127

Plant nucleic acid, possible bearing of thymus nucleic acid on the structure, 119
—— tissue, green and dried, cabbage, orange juice, and cod liver oil on calcium assimilation, comparative influence, 33
Potassium, calcium, magnesium, and sodium in small amounts of blood, direct quantitative determination, 223
——, ——, ——, and sodium in urine and stools, methods for the direct quantitative determination, 1
—— content of normal and some pathological human bloods, 83
—— cyanide, solutions of, effect of subcutaneous injections of, on the catalase content of blood, 445
Protein, Bence-Jones, note on a possible source of error in testing for, 21
—— derivatives, physiological action of some, studies on, 503, 523, 533, 537, 549
—— split products, influence upon the metabolism of fasting dogs, 503
—— —— ——, influence upon the metabolism of fasting rabbits, 549
Proteins of adequate quality and quantity for high milk production, can home grown rations supply, 305
Purine metabolism, endogenous, influence of food ingestion upon, 563, 575

RESERVE, alkali, and blood sugar content, influence of thyroparathyroidectomy upon, 557
——, ——, —— experimental shock, 533
RINGER, MICHAEL, and UNDERHILL, FRANK P. Studies on the physiological action of some protein derivatives. VII. The influence of various protein split products on the metabolism of fasting dogs, 503. VIII. The influence of nucleic acids on the metabolism of fasting dogs, 523
——. See UNDERHILL and RINGER, 533
ROSE, WILLIAM C. Influence of food ingestion upon endogenous purine metabolism. I, 563. II, 575

SARDINIA crœrulea, California sardine, chemical study, 93
Seed, maple (*Acer saccharinum*), acerin, the globulin of, 23
Shock, experimental, and alkali reserve, 533
SHORT, JAMES J. See MYERS and SHORT, 83
SIMMS, H. S. See LEVENE and SIMMS, 185 .
SMITH, ERMA, and MEDES, GRACE. Effect of heating the antiscorbutic vitamine in the presence of invertase, 323
Sodium, potassium, calcium, and magnesium in small amounts of blood, direct quantitative determination, 223
——, ——, ——, and magnesium in urine and stools, methods for the direct quantitative determination, 1
Solutions of potassium cyanide, effect of subcutaneous injections of, on the catalase content of blood, 445
Standardization and preparation of collodion membranes, 203

STEENBOCK, H. See HART, STEENBOCK, and HOPPERT, 33
Stimulating substances on the invertase activity of yeast, effect of certain, 329
Stools and urine, sodium, potassium, calcium, and magnesium in, methods for the direct quantitative determination in, 1.
Subcutaneous injections of solutions of potassium cyanide, effect of, on the catalase content of blood, 445
Sugar acids, numerical values of the optical rotations in, 197
——, blood, studies on, 313
—— content, blood, and alkali reserve, influence of thyroparathyroidectomy upon, 557
—— in the blood in diabetes mellitus and other conditions, total amount of circulating, 313
—— —— normal urine, method for the determination, 51
SUPPLEE, G. C., and BELLIS, B. Citric acid content of milk and milk products, 453
SWANSON, W. W. See KINGSBURY and SWANSON, 13
SWEET, J. E. See MILLER and SWEET, 21

TESTING for Bence-Jones protein, note on a possible source of error, 21
Thymus nucleic acid, structure of, and its possible bearing on the structure of plant nucleic acid, 119
Thyroid apparatus, studies of, 143
—— and parathyroid tissue on the creatinine-creatine balance in incubated extracts of muscle tissue of the albino rat, influence, 143
Thyroparathyroidectomy, influence upon blood sugar content and alkali reserve, 557
TISDALL, FREDERICK F., and KRAMER, BENJAMIN. Methods for the direct quantitative determination of sodium, potassium, calcium, and magnesium in urine and stools, 1
——. See KRAMER and TISDALL, 223
Tissue, incubated extracts of muscle, of the albino rat, influence of parathyroid and thyroid tissue on the creatinine balance in, 143
——, muscle, of the albino rat, incubated extracts of, influence of the reaction of the medium on the creatinine-creatine balance in, 133
——, parathyroid and thyroid, on the creatinine-creatine balance in incubated extracts of muscle tissue of the albino rat, influence, 143
——, plant, green and dried, cabbage, orange juice, and cod liver oil on calcium assimilation, comparative influence, 33
Tissues, king salmon, carbohydrate content of, during the spawning migration, 429
Tungstic acid method of deproteinization, comparison of picric acid method with, 127

UNDERHILL, FRANK P., and LONG, MARY LOUISA. Studies on the physiological action of some protein derivatives. X. The influence of nucleic acid on the metabolism of the fasting rabbit, 537
—— and NELLANS, CHARLES T. The influence of thyropara-

thyroidectomy upon blood sugar content and alkali reserve, 557

UNDERHILL, FRANK P., and RINGER, MICHAEL. Studies on the physiological action of some protein derivatives. IX. Alkali reserve and experimental shock, 533

——, GREENBERG, PHILIP, and ALU, ANTHONY F. Studies on the physiological action of some protein derivatives. XI. The influence of some protein split products upon the metabolism of fasting rabbits, 549

——. See RINGER and UNDERHILL, 503, 523,

Urine, hippuric acid in, rapid method for the determination of, 13

——, normal sugar in, method for the determination, 51

—— and stools, sodium, potassium, calcium, and magnesium in, methods for the direct quantitative determination in, 1

VAN SLYKE, DONALD D. Studies of acidosis. XVII. The normal and abnormal variations in the acid-base balance of the blood, 153

Vitamine, antiscorbutic, effect of heating, in the presence of invertase, 323

—— requirements of certain yeasts and bacteria, 437

——, water-soluble B, bacteria as a source, 379

WATER-SOLUBLE B vitamine, bacteria as a source, 379

WELKER, WILLIAM H., and BOLLMAN, J. L. The effect of subcutaneous injections of solutions of potassium cyanide on the catalase content of the blood, 445

XYLOSE and arabinose, characteristics of certain pentose-destroying bacteria especially as concerns their action on, 385

YEAST, invertase activity of, effect of certain stimulating substances, 329

Yeasts, certain, and bacteria, vitamine requirements, 437

ZINC and copper content of the human brain, 361